

CLAIMS

What is claimed is:

Claims 1-4 (*Cancelled*).

5. (*Currently Amended*) A pipe of crosslinked polyethylene ("PEX") having a wall of substantially uniform thickness in the range from 1.78 mm to 17.29 mm having dispersed therein from 0.1 to about 1.25% by weight of carbon black having a particle size less than 27 nm (nanometers), and wherein said PEX is crosslinked by a method selected from the addition of AZO compounds and silane grafting process said ~~The pipe of claim 1 including,~~

an inner tubular core of protective polymer selected from the group consisting of high density polyethylene ("HDPE") and chlorinated polyethylene ("CPE") contiguous with the inner surface of the crosslinked PEX, the core having a substantially uniform wall thickness in the range from 0.025 mm (1 mil) to 1.52 mm (0.06"), and a maximum wall thickness in the range from about 28 to 100 times smaller than the nominal diameter of the pipe in the range from 7 mm (0.25") to 152 mm (6"), ratio 28 being attributable to small diameter non-SDR-9 piping, and ratio 100 being attributable to the larger diameter SDR-9 pipe, wherein the HDPE has a density in the range from 0.941 g/cc to 0.963 g/cc, and the chlorinated polyethylene ("CPE") has a chlorine content in the range from 5 to about 50% by weight.

6. (*Original*) The pipe of claim 5 wherein the HDPE has a density in the range from about 0.950 to about 0.963 g/cm³ and the PEX is crosslinked to a gel level of at least 65%.

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7. (*Original*) The pipe of claim 5 wherein the inner core has a wall thickness in the range from at least 0.025 mm (1 mil) to about 1.52 mm (0.06") thick for pipe having a nominal diameter in the range from 7 mm (0.25") to 152 mm (6").

8. (*Original*) The pipe of claim 7 wherein the inner core has a wall thickness in the range from about 0.05 mm (2 mil) to 0.1 mm (4 mils) for pipe having a nominal diameter in the range from 13 mm (0.5") to 25 mm (1") and the gel level of PEX is greater than 70%.

Claim 9 (*Cancelled*).

10. (*Currently Amended*) The pipe of claim 4 5 wherein the PEX is crosslinked by a silane grafting process.

11. (*Currently Amended*) The A pipe of claim 1 including having successive inner and outer contiguous layers of PEX crosslinked polyethylene (PEX) melt-bonded to one and another, and wherein said PEX is crosslinked by a method selected from the addition of AZO compounds and silane grafting process; and wherein said pipe having a wall of substantially uniform thickness in the range from 1.78 mm to 17.29 mm, and wherein said inner layer having dispersed therein from 0.1 to about 1.25% by weight of carbon black having a particle size less than 27 nm (nanometers); and wherein said the inner layer containing carbon black, and the outer layer being PEX free of carbon black and color-coded.

12. (*Previously Presented*) A tri-layered PEX pipe comprising:

(a) an inner tubular core of protective polymer having a substantially uniform wall thickness at least 0.025 mm but no more than 1.52 mm, the protective polymer contiguous with the inner surface of a crosslinked PEX, the core having a substantially uniform

wall thickness in the range from 0.025 mm (1 mil) to 1.52 mm (0.06"), and a maximum wall thickness in the range from about 28 to 100 times smaller than the nominal diameter of the pipe in the range from 7 mm (0.25") to 152 mm (6"), ratio 28 being attributable to small diameter non-SDR-9 piping, and ratio 100 being attributable to the larger diameter SDR-9 pipe, wherein the protective polymer is coextrudable with the PEX;

- (b) an intermediate tubular layer of crosslinked polyethylene (PEX) having a gel level of at least 65% and containing from 0.1% to about 1.25% by weight carbon black, the intermediate tubular layer contiguously disposed radially outward from the core; and
- (c) an outer tubular layer of PEX free of carbon black, having a gel level of at least 65%, wherein said outer tubular layer of PEX is color-coded for installation in a chosen service.

13. *(Previously Presented)* The tri-layered pipe of claim 12 wherein the protective polymer is selected from the group consisting of high density polyethylene ("HDPE") and chlorinated polyethylene ("CPE"), the HDPE has a density in the range from 0.941 g/cc to 0.963 g/cc, and the chlorinated polyethylene ("CPE") has a chlorine content in the range from 5 to about 50% by weight.

14. *(Previously Presented)* A multilayer pipe comprising:

- (a) an inner tubular core of protective polymer having a substantially uniform wall thickness at least 0.025 mm but no more than 1.52 mm, the protective polymer contiguous with the inner surface of a crosslinked PEX, the core having a substantially uniform wall thickness in the range from 0.025 mm (1 mil) to 1.52 mm (0.06"), and a maximum wall thickness in the range from about 28 to 100 times smaller than the nominal diameter of the pipe in the range from 7 mm (0.25") to 152 mm (6"), ratio 28 being attributable to small diameter

non-SDR-9 piping, and ratio 100 being attributable to the larger diameter SDR-9 pipe, wherein the protective polymer is coextrudable with the PEX;

- (b) an intermediate tubular layer of crosslinked polyethylene (PEX) having a gel level of at least 65% and containing from 0.1% to about 1.25% by weight carbon black, the intermediate tubular layer contiguously disposed radially outward from the core; and,
- (c) an oxygen barrier of material other than polyethylene disposed radially outward from said intermediate layer.

15. *(Previously Presented)* The multiplayer pipe of claim 14 wherein the protective polymer is selected from the group consisting of high density polyethylene ("HDPE") and chlorinated polyethylene ("CPE"), the HDPE has a density in the range from 0.941 g/cc to 0.963 g/cc, and the chlorinated PE has a chlorine content in the range from 5 to about 50% by weight.

Claims 16-25 *(Cancelled)*.